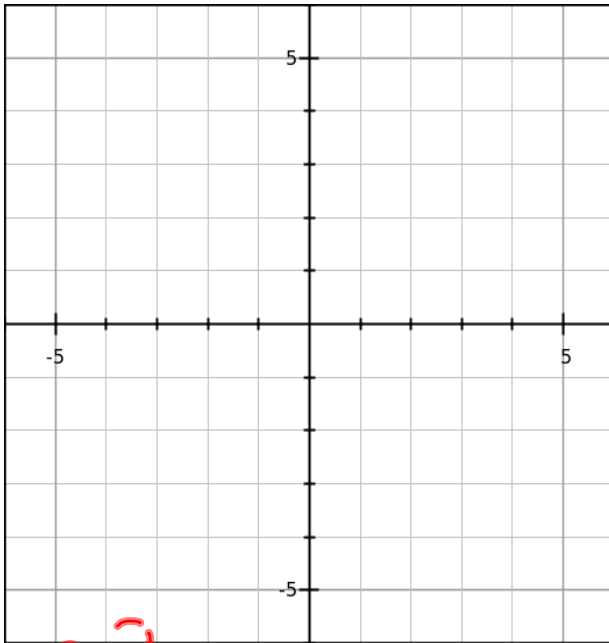


Solve by graphing



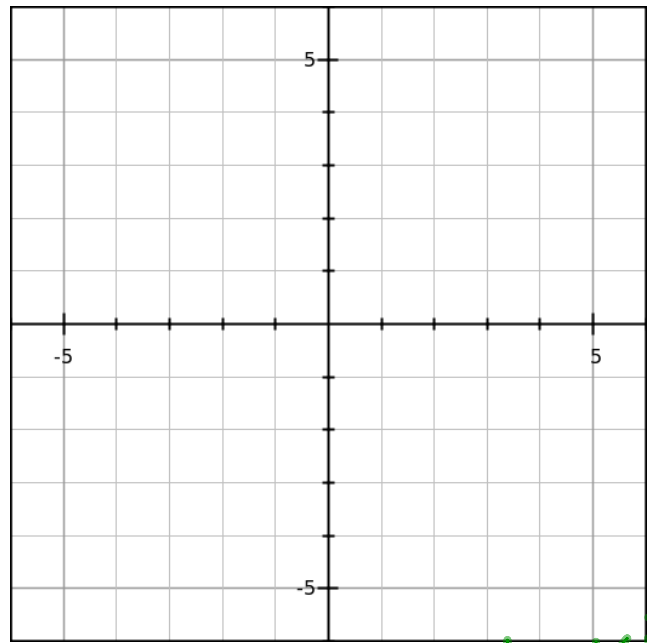
$$y = 2 - \frac{3}{2}x$$

$$y = \frac{1}{3}x - \frac{5}{3}$$

$$3x + 2y = 4$$

$$-x + 3y = -5$$

(2, -1)



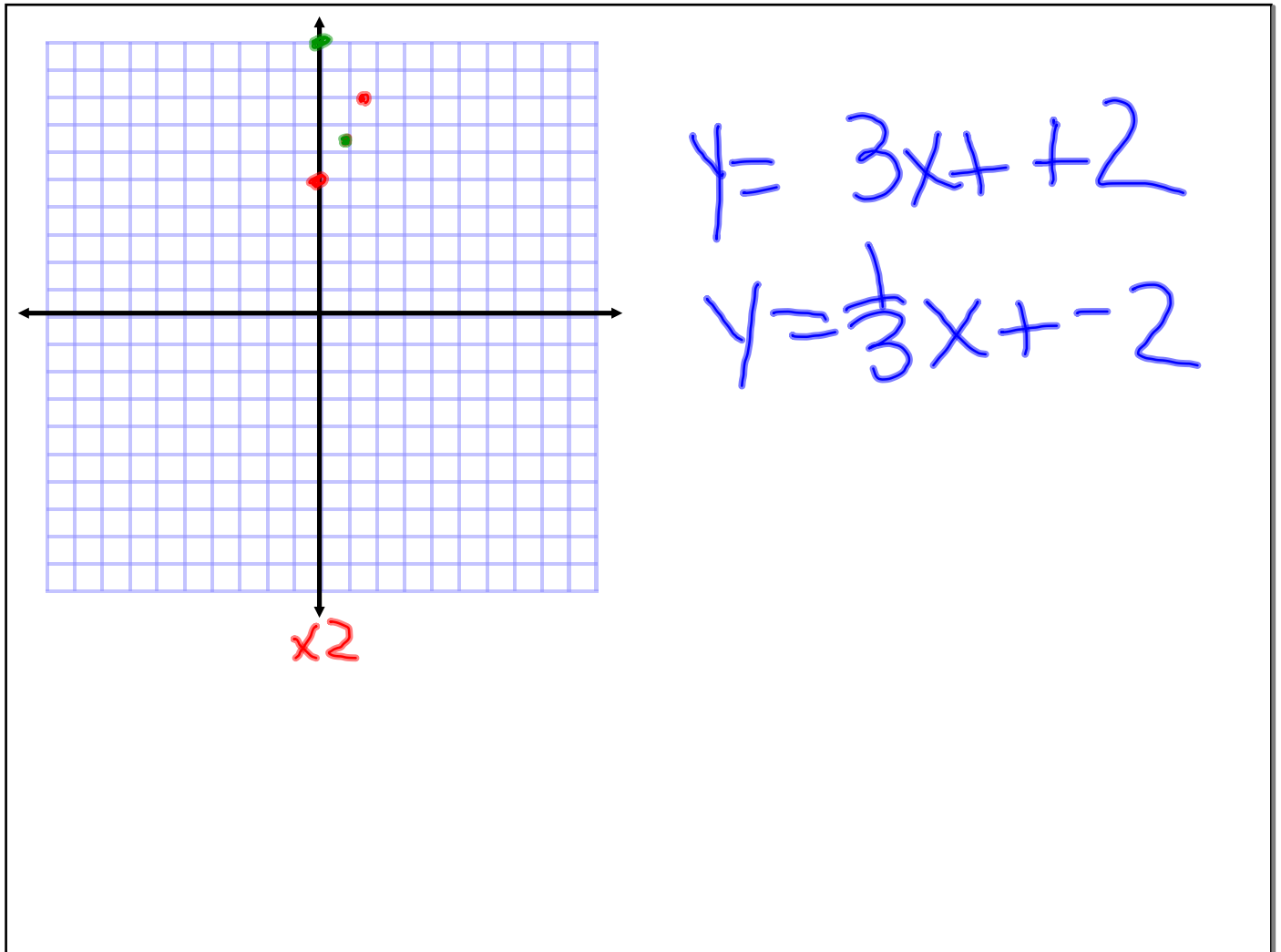
$$x + y = -2$$

$$2x - 3y = -9$$

$$y = -x - 2$$

$$y = \frac{2}{3}x + 3$$

(-3, 1)



7.2 Solving Linear Systems with Substitution DAY 1

 **STEP 1** Pick 1 equation and solve for 1 variable


Substitute expression from step 1 into the other original equation and solve

 **STEP 2**

 **STEP 3** Substitute value from step 2 into any other equation & solve

Write answer as an ordered pair. Put in alphabetical order if variables are not x & y

 **STEP 4**

 **STEP 5** Check solutions with both equations

Solve the System



$$3x - y = 10$$

$$y = 3x - 10$$

$$2x - 3y = 9$$

Solve for y

$$2x - 3y = 9$$

$$2x - 3(3x - 10) = 9$$

$$2x - 9x + 30 = 9$$

$$-7x + 30 = 9$$

$$-7x = -21$$

$$x = 3$$

Answer is
(3 , - 1)

$$y = 3x - 10$$

$$y = 3(3) - 10$$

$$y = 9 - 10$$

$$y = -1$$

Solve with substitution and check!

$$1. \ y = 6x - 11$$

$$-2x - 3y = -7$$

$$-2x - 3(6x - 11) = -7$$

$$-2x - 18x + 33 = -7$$

$$-20x + 33 = -7$$

$$-20x = -40$$

$$x = 2$$

$$y = 6 \cdot 2 - 11$$

$$y = 12 - 11$$

$$y = 1$$

$$(2, 1)$$

$$(2, 1)$$

Solve with substitution and check!

$$\begin{aligned} 2. \quad y &= -2 \\ 4x - 3y &= 18 \end{aligned}$$



Solve with substitution and check!

3. $-7y - 2y = -13$
 $x - 2y = 11$



Solve with substitution and check!

4. $2x + y = 20$
 $6x - 5y = 12$

$\rightarrow \begin{array}{r} 2x + y = 20 \\ -2x \end{array}$

$y = 20 - 2x$

$6x + 5(20 - 2x) = 12$

$6x - 100 + 10x = 12$

$16x - 100 = 12$
 $\quad \quad +100 \quad +100$

$y = 20 - 2(7)$
 $y = 20 - 14$
 $y = 6$

$\frac{16x}{16} = \frac{112}{16}$

$x = 7$

$(7, 6)$

$(7, 6)$

Homework:

★ WARM UP ★

★1. Solve by graphing ★

$$y = 3x - 4$$

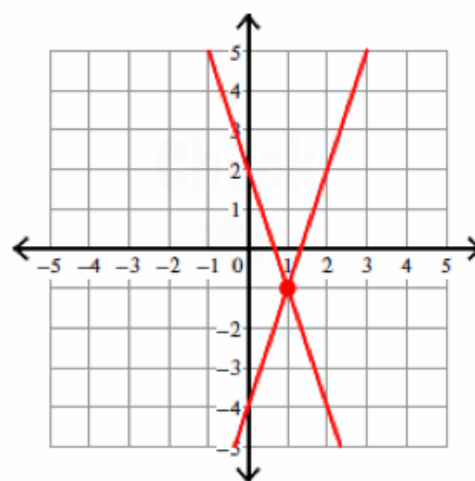
$$y + 3x = 2$$

★2. Solve with substitution ★

$$2x + y = 20$$

$$6x - 5y = 12$$

1) $y = 3x - 4$
 $y = -3x + 2$



(1, -1)

Check
(7, 6)

Solve with substitution

**1. $2x + 6y = 15$
 $x = 2y$**

Check

$$\begin{array}{l} 2. \quad 3x + y = 3 \\ \quad \quad 7x + 2y = 1 \end{array}$$

$(-5, 18)$